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MARCH 3.

The President, Dr. RUSCHENBERGER, in the chair.

Thirty members present.

The following paper was presented for publication:—

“Remarks on the Tertiary Clay of the Upper Amazon, with descriptions of new shells.” By T. A. Conrad.

*Extract of a Letter relating to Mammalian Fossils in California.*—Prof. LEIDY read an extract from a letter recently received from Dr. Lorenzo G. Yates, of Centreville, Alameda County, California, as follows:—

Yours of the 29th came to hand, and also a copy of your work, "Contributions to the Extinct Vertebrate Fauna of the Western Territories," for which accept my thanks. Prof. E. O. Hovey's statement in relation to the localities of some of the fossils, page 229, of the "Contributions," is incorrect. I discovered all the fossils in a gravel deposit, which was evidently an old river channel, in Livermore Valley, not from a "wash in the side of a hill."

The *Bos latifrons*, figs. 6, 7, plate xxviii.; the *Canis indianensis*, fig. 2, pl. xxxi.; the *Felis imperialis*, fig. 3, pl. xxxi.; and the *Auchenia hesternia*, figs. 1–3, pl. xxxvii., together with the teeth and bones of *Elephas americanus*, *Equus*, and the other bones which I could not identify, were all discovered by me in that locality.

Accompanying the letter was a newspaper slip of the discovery of remains of Elephant and Mastodon in various localities, which is here inserted.

At a meeting of the Agassiz Institute at Sacramento, on the 17th of June, the following paper by Dr. L. G. Yates, of Centreville, Alameda County, was read:—

The interest taken within the last few years in the "antiquity of man" has invested the finding of the remains of the extinct mammalia with a greater degree of interest than they would otherwise receive, and the question is one which has by common consent been admitted to be one of the most important which has been raised of late years, consequently the discovery of the bones and teeth of any of the larger animals, their geological location and surroundings, is matter of interest to men of science and the majority of educated minds of all classes.

Less than fifty years ago the discovery of the bones of a fossil elephant, or other large animal, would have been looked upon as evidence supporting some popular superstition in relation to giants or tritons, and by some, less sceptical than the majority, they would have been called a *lusus naturæ*, or, as the writer has heard them pronounced within the last three or four years, "peculiarly formed rock," or "the bones of some common animal which has grown in size since the animal died." But the majority of the people of California at the present day are better informed on the subject, and admit the finding of remains of extinct animals of size and form different from those now existing in temperate regions; yet, within the last two or three years, the writer remembers having seen an item in one of our interior papers, giving an account of the finding of a "huge tibia," and giving it (on the authority of some "Doctor") as the bone of a "human" or of some other "upright walking animal."

But the principal object of the writer of this article, is to furnish a list of localities of remains of fossil elephants and mastodons, to which additions may be made from time to time.

The writer, during a residence of eight years in California, has spent considerable time in visiting locations where the fossils have been discovered by others, and has succeeded in discovering a number of localities not before known, where fragments of bones and teeth, portions of skeletons, and, in some instances, whole skeletons of the large pachyderms have been found, and has been so fortunate as to discover the only new species, and, at the same time, probably the oldest mastodon found on the Pacific Coast.

*List of Localities—Fossil Elephas.*

*Alameda County.*—No. 1. Near Mission San Jose, *Elephas Americanus* and *E.* —? Discovered by the writer in post pliocene detritus with *Mastodon*, *Lama*, *Equus*, *Bos*, and a large carnivore; upper molar deposited in Amherst College; portion of lower jaw with molar in Yale College, and portion of tusk in Wabash College.

No. 2. In Livermore Valley, two large molars of *Elephas Americanus*, discovered by the writer in post pliocene with *Lama California?* *Bos*, *Equus*, *Cervus*, etc.; one molar in Wabash College, the other in writer's collection.

No. 3. Portion of tusk, from bed of a creek between Haywood and Dublin, formerly in writer's cabinet, deposited in Wabash College.

*Calaveras County.*—No. 1. Near Murphy's, in auriferous gravel, fragment of molar of *Elephas Americanus*, discovered by the writer; deposited in Yale College.

*Los Angeles County.*—At San Pedro.

*Placer County.*—No. 1. Near Forest Hill.

No. 2. Near Michigan Bluff, in auriferous gravel.

*Solano County.*—No. 1. At Mare Island, molar. (W. P. Blake, Proc. Cal. Acad. Nat. Science.)

No. 2. Near Rio Vista, entire skeleton of *Elephas Americanus*, about seven feet below the surface in clay. The party who discovered it "went for it" with a pick, and with the assistance of his neighbors, and by dint of perseverance and hard labor, they succeeded in entirely destroying the bones, so that when the writer visited the locality he found a large pile of small fragments, and succeeded in obtaining casts of portion of the right side of lower jaw with molar, and a portion of upper molar; which, with three or four vertebræ, comprised all that was taken, and they were so broken that they had to be built up and partially restored in order to get the casts.

*Fossil Mastodon.*

*Alameda County.*—No. 1. Near Mission San Jose, in post pliocene gravel, the writer discovered an almost entire lower jaw,

containing five molars, and showing in a remarkable degree the method of growth and replacement of the teeth; deposited in Yale College.

No. 2. Molar in boulder of conglomerate, found in Alameda Creek, and presented to writer; deposited in Yale College.

*Amador County*.—Near Volcano, in auriferous gravel. Locality visited.

*Calaveras County*.—At Douglas Flat, near Murphy's. Locality visited.

*Contra Costa County*.—No. 1. At Oak Springs, lower jaw entire and upper molars of *Mastodon obscurus*, taken out of the base of a pliocene hill by the writer; entire skeleton in the rock, but impossible to take it out; lower jaw and upper molar in Amherst College; upper molar and fragment of tusk in Yale College.

No. 2. Molar taken out of tunnel on the railroad between Somersville and Pittsburg Landing. Locality visited.

*El Dorado County*.—No. 1. At Grey's Flat, molars in recent gravel deposit. Locality visited.

No. 2. El Dorado Ranch, several molars and fragment. Locality visited. The "Doctor" who had them pronounced them "Saurian teeth." The teeth had been broken up, and he called each fragment (consisting of a cusp) an entire tooth, but on seeing the pieces put together, and forming a large molar, he thought "perhaps it might be so," but seemed loth to believe it, and refused to part with even a fragment.

No. 3. At Gold Hill, near Placerville.

*Mendocino County*.—Locality unknown.

*Placer County*.—On North Fork of American River, above Rattlesnake, in gravel. Locality visited.

*Santa Barbara County*.—At Gaviota Pass. (Prof. J. D. Whitney.)

*Stanislaus County*.—On Dry Creek, *Mastodon Shepardi*; new species discovered by the writer in pliocene sandstone, at the base of a high perpendicular bluff; fragments of tusks in Amherst and Yale Colleges.

*Solano County*.—Near Benicia. Locality visited.

*Sonoma County*.—Near Petaluma. Bones in recent deposit near creek. Locality visited.

*Tuolumne County*.—No. 1. At Texas Flat, in auriferous gravel. Locality visited.

No. 2. At Shaw's Flat, in auriferous gravel. Locality visited.

No. 3. At Gold Springs, in auriferous gravel. Locality visited.

No. 4. Under Table Mountain? (Dr. Snell) in old river bed. Locality visited.

It will be seen that the majority of the localities given have been visited by the writer. Particular attention has been given to the formations and accompanying fossils, and search made for evidences of the handiwork of man, but up to this time the writer has failed to discover anything which would show conclusively

that man and either the mastodon or the fossil elephant were contemporaneous in this State.

The stories of the finding of bones and teeth of fossil vertebrates, by miners and persons not practical geologists, nor accustomed to study the geological whys and wherefores, and who do not realize the necessity of close observation and discrimination of the circumstances and surroundings of the relics, are not, in the writer's opinion, entitled to much weight, and are very liable to give false impressions; for example, in a ravine in Alameda County, the writer found a human skull in the bank, some thirty feet below the surface, and apparently in the same formation where he had previously discovered bones and teeth of *Elephas*, and afterward found a lower jaw of *Mastodon* and molar of *Elephas*, but upon climbing to the top of the bank, the remaining portions of the human skeleton were found some eighteen inches below the surface in an old Indian burial ground or rancheria. It would have been an easy matter to have labelled that skull as "found with bones of *Elephant* and *Mastodon*," and passed it off as another link in the chain of evidence of the contemporaneousness of man and the extinct animals; or the creek in the ravine might have changed its bed and the human skull been covered up by detritus in close proximity with the mastodon jaw, and after many years discovered by some future fossil hunter, and the remains of the two animals assigned, without question, to the same age.

One more example. Some four years since, a friend brought me a remarkably well-preserved molar of a mastodon, imbedded in a boulder of conglomerate, which he had found in Alameda creek. Now, suppose that tooth, instead of being placed in the writer's cabinet, had been carried by a freshet on to some gravel bed along the creek, and the skull of some aborigine washed out of the bank above (as they often do), or some of the stone implements sometimes found there had been deposited in the same place. Perhaps in a few hundred years or less, some antiquarian or ethnologist finding these relics in the same gravel bed might at once decide that they were of the same age, when in fact the mastodon tooth washed out of a pliocene gravel bed, miles from where it was found, and it may have been (and probably was) separated from the other parts of the skeleton, and carried by the action of water perhaps hundreds of miles before it was deposited in the pliocene conglomerate; or, to carry the probabilities still further, the mastodon might have lived in the miocene period, and the tooth washed out of a miocene rock by a pliocene river, to where it was again deposited, and afterward formed a part of the conglomerate boulder in which it was found.

The death of Dr. John Bachman, a Correspondent of the Academy, was announced.